

What is claimed is:

1. A solid electrolytic capacitor comprising:
a first electrode layer;
a dielectric layer formed on said first electrode
5 layer;
a second electrode layer opposing to said first
electrode layer; and
a solid electrolyte layer disposed between said
first electrode layer and said second electrode layer
and adjacent to said dielectric layer, said solid
10 electrolyte layer made of a solid electrolyte
containing a conjugated polymer compound and a polymer
compound having a proton-donating functional group.
2. A solid electrolytic capacitor according to
15 claim 1, wherein said first electrode layer is a valve
metal layer made of a valve metal consisting of
aluminum, tantalum, niobium, titanium or zirconium.
3. A solid electrolytic capacitor according to
20 claim 1, wherein said proton-donating functional group
is a sulfonic acid group or phosphoric acid group.
4. A solid electrolytic capacitor according to
claim 1, wherein the molecular frame to which said
proton-donating functional group is bonded in said
polymer compound contains a fluoroethylenic polymer,
25 styrene polymer, (meth)acrylic polymer or imide polymer.
5. A solid electrolytic capacitor according to

claim 1, wherein said polymer compound having a proton-donating functional group has a perfluoroalkyl ether side chain having a sulfonic acid group.

5 6. A solid electrolytic capacitor according to claim 1, wherein said conjugated polymer compound is polyaniline, polypyrrole, polythiophene, polyfuran or a derivative thereof.

10 7. A solid electrolytic capacitor according to claim 1, wherein said polymer compound having a proton-donating functional group is present at 0.01-50 parts by weight to 100 parts by weight of said conjugated polymer compound.

8. A process for fabrication of a solid electrolytic capacitor comprising the steps of:

15 a first electrode layer forming step in which a surface of a valve metal is etched to form a first electrode layer;

20 a dielectric layer forming step in which the etched section of said first electrode layer is oxidized to form a dielectric layer;

25 a solid electrolyte layer forming step in which a monomer-containing composition, including a monomer for a conjugated polymer compound and a solution containing a polymer compound having a proton-donating functional group dissolved in a solvent, is supplied onto said dielectric layer, said monomer in said monomer-

containing composition is polymerized, and said solvent is removed either during or after said polymerization in order to form a solid electrolyte layer;

5 and a second electrode forming step in which a conductive member is laminated on said solid electrolyte layer to form a second electrode layer.

9. A process for fabrication of a solid electrolytic capacitor according to claim 8, wherein said second electrode layer forming step is followed by
10 an additional post-treatment step of aging treatment.